

FIG. 1A

```

5'   9      18      27      36      45      54
    CAG AGA GGC TGT ATT TCA GTG CAG CCT GCC AGA CCT CTT CTG GAG GAA GAC TGG
    ---
      63      72      81      90      99     108
    ACA AAG GGG GTC ACA CAT TCC TTC CAT ACG GTT GAG CCT CTA CCT GCC TGG TGC
    ---

      117      126      135      144      153      162
    TGG TCA CAG TTC AGC TTC TTC ATG ATG GTG GAT CCC AAT GGC AAT GAA TCC AGT
    ---
                      M  M  V  D  P  N  G  N  E  S  S

      171      180      189      198      207      216
    GCT ACA TAC TTC ATC CTA ATA GGC CTC CCT GGT TTA GAA GAG GCT CAG TTC TGG
    ---
    A  T  Y  F  I  L  I  G  L  P  G  L  E  E  A  Q  F  W

      225      234      243      252      261      270
    TTG GCC TTC CCA TTG TGC TCC CTC TAC CTT ATT GCT GTG CTA GGT AAC TTG ACA
    ---
    L  A  F  P  L  C  S  L  Y  L  I  A  V  L  G  N  L  T

      279      288      297      306      315      324
    ATC ATC TAC ATT GTG CGG ACT GAG CAC AGC CTG CAT GAG CCC ATG TAT ATA TTT
    ---
    I  I  Y  I  V  R  T  E  H  S  L  H  E  P  M  Y  I  F

      333      342      351      360      369      378
    CTT TGC ATG CTT TCA GGC ATT GAC ATC CTC ATC TCC ACC TCA TCC ATG CCC AAA
    ---
    L  C  M  L  S  G  I  D  I  L  I  S  T  S  S  M  P  K

      387      396      405      414      423      432
    ATG CTG GCC ATC TTC TGG TTC AAT TCC ACT ACC ATC CAG TTT GAT GCT TGT CTG
    ---
    M  L  A  I  F  W  F  N  S  T  T  I  Q  F  D  A  C  L

      441      450      459      468      477      486
    CTA CAG ATT TTT GCC ATC CAC TCC TTA TCT GGC ATG GAA TCC ACA GTG CTG CTG
    ---
    L  Q  I  F  A  I  H  S  L  S  G  M  E  S  T  V  L  L

      495      504      513      522      531      540
    GCC ATG GCT TTT GAC CGC TAT GTG GCC ATC TGT CAC CCA CTG CGC CAT GCC ACA
    ---
    A  M  A  F  D  R  Y  V  A  I  C  H  P  L  R  H  A  T

      549      558      567      576      585      594
    GTA CTT ACG TTG CCT CGT GTC ACC AAA ATT GGT GTG GCT GCT GTG GTG CGG GGG
    ---
    V  L  T  L  P  R  V  T  K  I  G  V  A  A  V  V  R  G

      603      612      621      630      639      648
    GCT GCA CTG ATG GCA CCC CTT CCT GTC TTC ATC AAG CAG CTG CCC TTC TGC CGC
    ---
    A  A  L  M  A  P  L  P  V  F  I  K  Q  L  P  F  C  R

```

FIG. 1B

657	666	675	684	693	702
TCC AAT ATC CTT TCC	CAT TCC TAC TGC CTA CAC	CAA GAT GTC ATG AAG CTG	GCC		
S N I L S H S Y C L H Q D V M K L A					
711	720	729	738	747	756
TGT GAT GAT ATC CGG	GTC AAT GTC GTC TAT GGC	CTT ATC GTC ATC ATC TCC	GCC		
C D D I R V N V V Y G L	I V I I S A				
765	774	783	792	801	810
ATT GGC CTG GAC TCA CTT CTC ATC TCC TTC TCA	TAT CTG CTT ATT CTT AAG ACT				
I G L D S L L I S F S Y L L I L K	T				
819	828	837	846	855	864
GTG TTG GGC TTG ACA CGT GAA GCC CAG GCC AAG	GCA TTT GGC ACT TGC GTC TCT				
V L G L T R E A Q A K A	F G T C V S				
873	882	891	900	909	918
CAT GTG TGT GCT GTG TTC ATA TTC TAT GTA CCT	TTC ATT GGA TTG TCC ATG GTG				
H V C A V F I F Y V P F I G L S M	V				
927	936	945	954	963	972
CAT CGC TTT AGC AAG CGG CGT GAC TCT CCG CTG	CCC GTC ATC TTG GCC AAT ATC				
H R F S K R R D S P	L P V I L A N I				
981	990	999	1008	1017	1026
TAT CTG CTG GTT CCT CCT GTG CTC AAC CCA ATT	GTC TAT GGA GTG AAG ACA AAG				
Y L L V P P V L N P I V Y G V	K T K				
1035	1044	1053	1062	1071	1080
GAG ATT CGA CAG CGC ATC CTT CGA CTT TTC	CAT GTG GCC ACA CAC GCT TCA GAG				
E I R Q R I L R L F H V A T H A S E					
1089	1098	1107	1116	1125	1134
CCC TAG GTG TCA GTG ATC AAA CTT CTT TTC	CAT TCA GAG TCC TCT GAT TCA GAT				
P *					
1143	1152	1161	1170	1179	1188
TTT AAT GTT AAC ATT TTG GAA GAC AGT ATT	CAG AAA AAA AAT TTC CTT AAT AAA				
1197	1206	1215	1224	1233	1242
AAA TAC AAC TCA GAT CCT TCA AAT ATG AAA	CTG GTT GGG GAA TCT CCA TTT TTT				
1251	1260	1269	1278	1287	1296
CAA TAT TAT TTT CTT CTT TGT TTT CTT GCT	ACA TAT AAT TAT TAA TAC CCT GAC				
1305	1314	1323	1332	1341	1350
TAG GTT GTG GTT GGA GGG TTA TTA CTT TTC	ATT TTA CCA TGC AGT CCA AAT CTA				

FIG. 1C

1359	1368	1377	1386	1395	1404
AAC TGC TTC	TAC TGA TGG	TTT ACA GCA	TTC TGA GAT	AAG AAT GGT	ACA TCT AGA
1413	1422	1431	1440	1449	1458
GAA CAT TTG	CCA AAG GCC	TAA GCA CGG	CAA AGG AAA	ATA AAC ACA	GAA TAT AAT
1467	1476	1485	1494	1503	1512
AAA ATG AGA	TAA TCT AGC	TTA AAA CTA	TAA CTT CCT	CTT CAG AAC	TCC CAA CCA
1521	1530	1539	1548	1557	1566
CAT TGG ATC	TCA GAA AAA	TGC TGT CTT	CAA AAT GAC	TTC TAC AGA	GAA GAA ATA
1575	1584	1593	1602	1611	1620
ATT TTT CCT	CTG GAC ACT	AGC ACT TAA	GGG GAA GAT	TGG AAG TAA	AGC CTT GAA
1629	1638	1647	1656	1665	1674
AAG AGT ACA	TTT ACC TAC	GTT AAT GAA	AGT TGA CAC	ACT GTT CTG	AGA GTT TTC
1683	1692	1701	1710	1719	1728
ACA GCA TAT	GGA CCC TGT	TTT TCC TAT	TTA ATT TTC	TTA TCA ACC	CTT TAA TTA
1737	1746	1755	1764	1773	1782
GGC AAA GAT	ATT ATT AGT	ACC CTC ATT	GTA GCC ATG	GGA AAA TTG	ATG TTC AGT
1791	1800	1809	1818	1827	1836
GGG GAT CAG	TGA ATT AAA	TGG GGT CAT	ACA AGT ATA	AAA ATT AAA	AAA AAA AAA
1845	1854	1863	1872	1881	1890
GAC TTC ATG	CCC AAT CTC	ATA TGA TGT	GGA AGA ACT	GTT AGA GAG	ACC AAC AGG
1899	1908	1917	1926	1935	1944
GTA GTG GGT	TAG AGA TTT	CCA GAG TCT	TAC ATT TTC	TAG AGG AGG	TAT TTA ATT
1953	1962	1971	1980	1989	1998
TCT TCT CAC	TCA TCC AGT	GTT GTA TTT	AGG AAT TTC	CTG GCA ACA	GAA CTC ATG
2007	2016	2025	2034	2043	2052
GCT TTA ATC	CCA CTA GCT	ATT GCT TAT	TGT CCT GGT	CCA ATT GCC	AAT TAC CTG
2061	2070	2079	2088	2097	2106
TGT CTT GGA	AGA AGT GAT	TTC TAG GTT	CAC CAT TAT	GGA AGA TTC	TTA TTC AGA
2115	2124	2133	2142	2151	2160
AAG TCT GCA	TAG GGC TTA	TAG CAA GTT	ATT TAT TTT	TAA AAG TTC	CAT AGG TGA
2169	2178	2187	2196	2205	2214
TTC TGA TAG	GCA GTG AGG	TTA GGG AGC	CAC CAG TTA	TGA TGG GAA	GTA TGG AAT
2223	2232	2241	2250	2259	2268
GGC AGG TCT	TGA AGA TAA	CAT TGG CCT	TTT GAG TGT	GAC TCG TAG	CTG GAA AGT
2277	2286	2295	2304	2313	2322
GAG GGA ATC	TTC AGG ACC	ATG CTT TAT	TTG GGG CTT	TGT GCA GTA	TGG AAC AGG
2331	2340	2349	2358	2367	2376
GAC TTT GAG	ACC AGG AAA	GCA ATC TGA	CTT AGG CAT	GGG AAT CAG	GCA TTT TTG

FIG. 1D

2385	2394	2403	2412	2421	2430
CTT CTG AGG GGC TAT TAC CAA GGG TTA ATA GGT TTC ATC TTC AAC AGG ATA TGA					
2439	2448	2457	2466	2475	2484
CAA CAG TGT TAA CCA AGA AAC TCA AAT TAC AAA TAC TAA AAC ATG TGA TCA TAT					
2493	2502	2511	2520	2529	2538
ATG TGG TAA GTT TCA TTT TCT TTT TCA ATC CTC AGG TTC CCT GAT ATG GAT TCC					
2547	2556	2565	2574	2583	2592
TAT AAC ATG CTT TCA TCC CCT TTT GTA ATG GAT ATC ATA TTT GGA AAT GCC TAT					
2601	2610	2619	2628	2637	2646
TTA ATA CTT GTA TTT GCT GCT GGA CTG TAA GCC CAT GAG GGC ACT GTT TAT TAT					
2655	2664	2673	2682	2691	2700
TGA ATG TCA TCT CTG TTC ATC ATT GAC TGC TCT TTG CTC ATC ATT GAA TCC CCC					
2709	2718	2727	2736	2745	2754
AGC AAA GTG CCT AGA ACA TAA TAG TGC TTA TGC TTG ACA CCG GTT ATT TTT CAT					
2763	2772	2781	2790	2799	2808
CAA ACC TGA TTC CTT CTG TCC TGA ACA CAT AGC CAG GCA ATT TTC CAG CCT TCT					
2817	2826	2835	2844	2853	2862
TTG AGT TGG GTA TTA TTA AAT TCT GGC CAT TAC TTC CAA TGT GAG TGG AAG TGA					
2871	2880	2889	2898	2907	2916
CAT GTG CAA TTT CTA TAC CTG GCT CAT AAA ACC CTC CCA TGT GCA GCC TTT CAT					
2925	2934	2943	2952	2961	2970
GTT GAC ATT AAA TGT GAC TTG GGA AGC TAT GTG TTA CAC AGA GTA AAT CAC CAG					
2979	2988	2997	3006	3015	3024
AAG CCT GGA TTT CTG AAA AAA CTG TGC AGA GCC AAA CCT CTG TCA TTT GCA ACT					
3033	3042	3051	3060	3069	3078
CCC ACT TGT ATT TGT ACG AGG CAG TTG GAT AAG TGA AAA ATA AAG TAC TAT TGT					
3087	3096	3105	3114	3123	3132
GTC AAG AAA AAA AAA AAA AAA AAA AAA AAA AAA AAA AAA AAA AAA AAA AAA					

AAA A 3'

FIG. 2

1	15 16	30 31	45 46	60 61	75 76	90
1	101P3A11	MMVDPNGNESSATYF ILIGLPGLEEAQFWL APPLCSLYLIAVLGN LTIIVIVRTEHSLHE PMYIFLCMLSGIDIL ISTSSMPKMLAIFWF	90			
2	RA1C	-MSSCN---FTHATF MLIGIPGLEEAHFWF GPPLLSMYAVALFGN CIVVFIVRTERSLHA PMYIFLCMLAAIDLA LSTSTMPKIALAIFWF	86			
3	HPRAJ70	-MSSCN---FTHATC VLGIPGLEKAHFWV GPPLLSMYVWAMCGN CIVVFIVRTERSLHA PMYIFLCMLAAIDLA LSTSTMPKIALAIFWF	86			
	91	105 106	120 121	135 136	150 151	165 166
1	101P3A11	NSTTIQFDACLLQIF AIHSLSGMESTVLLA MAFDRVVAICHPLRH AAVTLTLPRVTIKIGVA AVVRGAALMLAPLPVF IKQLPFCRSNILSHS	180			
2	RA1C	DSREITFDACLAQMF FIHALSAIESTILLA MAFDRVVAICHPLRH AAVLNTVTVQIGMV ALVRGSLFFFPPLPLL IKRLAFCHSNVLSHS	176			
3	HPRAJ70	DSREISIEACLTQMF FIHALSAIESTILLA MAFDRVVAICHPLRH AAVLNTVTVAQIGIV AVVRGSLFFFPPLPLL IKRLAFCHSNVLSHS	176			
	181	195 196	210 211	225 226	240 241	255 256
1	101P3A11	YCLHQDVMKLACDDI RVNVVYGLIVITISAI GLDSLLISFSYLLIL KTVLGLT-REQAQA FGTCVSHVCAVFIFY VPTIGLSVMHRFSKR	270			
2	RA1C	YCVHQDVMKLAYTDT LPNVVYGLTALLVM GVDVMFISLSYFLII RAVLQLPKSERAKA FGTCVSHIGVVLAFY VPLIGLSVVHRFGNS	266			
3	HPRAJ70	YCVHQDVMKLAYADT LPNVVYGLTALLVM GVDVMFISLSYFLII RTVLQLPKSERAKA FGTCVSHIGVVLAFY VPLIGLSVVHRFGNS	266			
	271	285 286	300 301	315 316	330 331	345 346
1	101P3A11	RDSPLPVLIANIYLL VPPVLNPIVYGKTK EIRQRILRLFHVATH ASEP-----	360			
2	RA1C	LDPIVHVLMGDVYLL LPPVINPIIYGAKTK QIRTRVLAMFKISCD KDIEAGGNT	318			
3	HPRAJ70	LHPIVRVVMGDIYLL LPPVINPIIYGAKTK QIRTRVLAMFKISCD KDLQAVGGK	320			

FIG. 3

GATCAAACCTTCTTTTCCATTTCAGAGTCCTCTGATTTCAGATTTTAAATGTTAACATTTTGGAAGACAGTATTCAGAAAAA
AATTTCCCTTAATAAAAAATACAACTCAGATCCTTCAAATATGAACTGGTTGGGGAATCTCCATTTTTCATATTATTT
TCTTCTTTGTTTTCTTGCTACGTATAATTATTAATATCCTGACTAGGTTGTGGTTGGAGGGTTATTACTTTTCATTTA
CCATGCAGTCCAAATCTAACTGCTTCTACTGATGGTTTACAGCATTCTGAGATAAGAATGGTACATCTAGAGAACATT
TGCCAAAGGCCTAAGCACAGCAAAGGAAAATAAACACAGAATATAATAAAATGAGATAATCTAGCTTAAACTATAACT
TCCTCTTTAGAACTCCCAACCACATTGGATC

FIG. 4

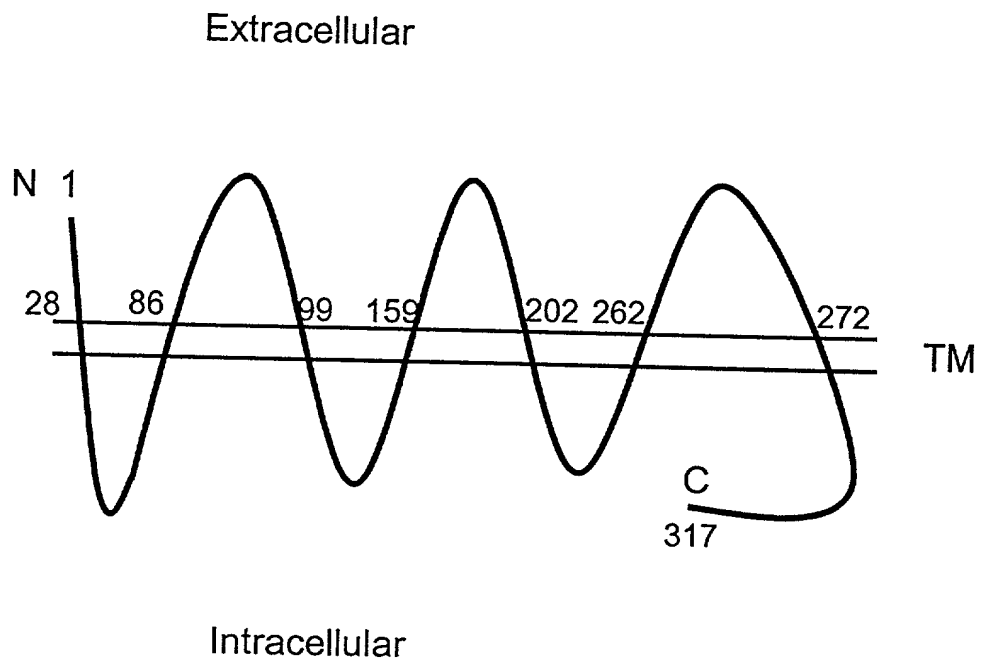


FIG. 5A

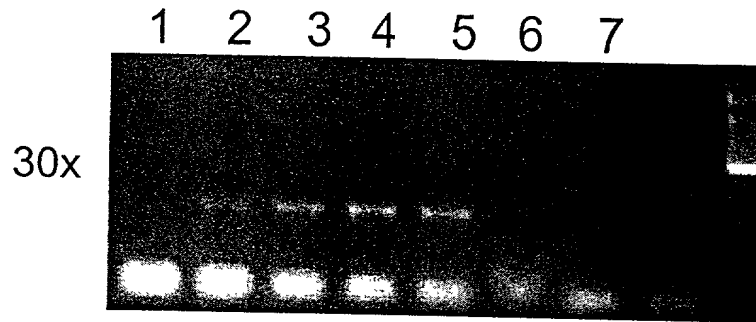


FIG. 5B

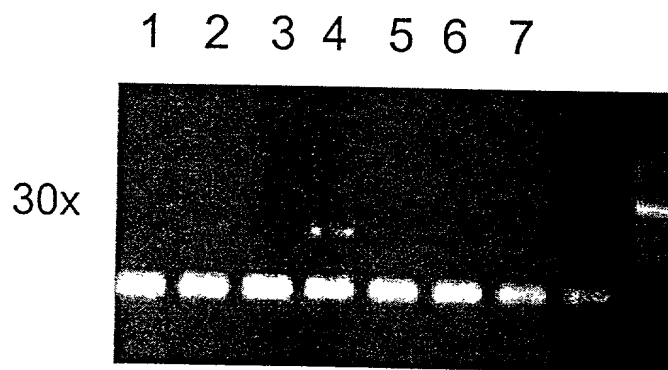


FIG. 6A

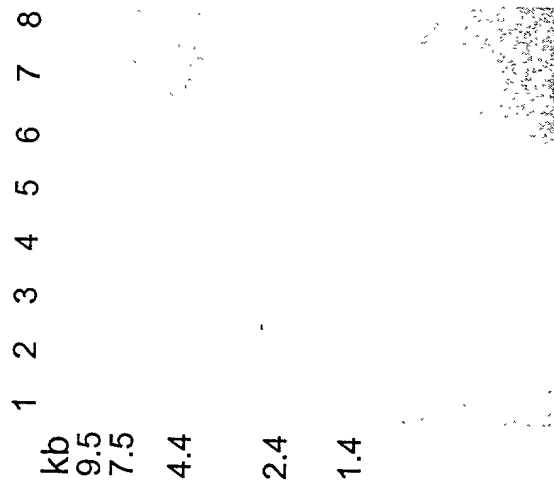


FIG. 6B

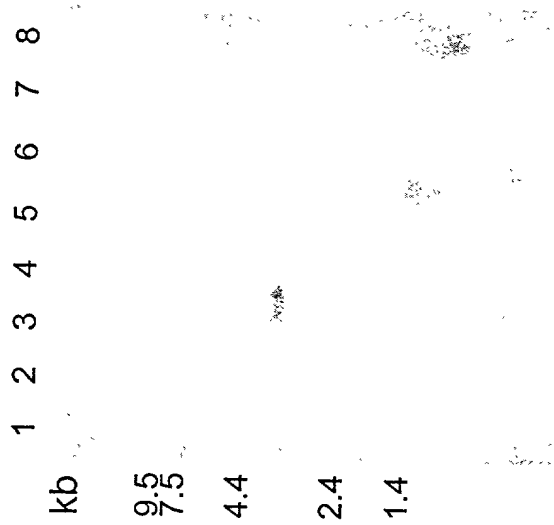


FIG. 6C

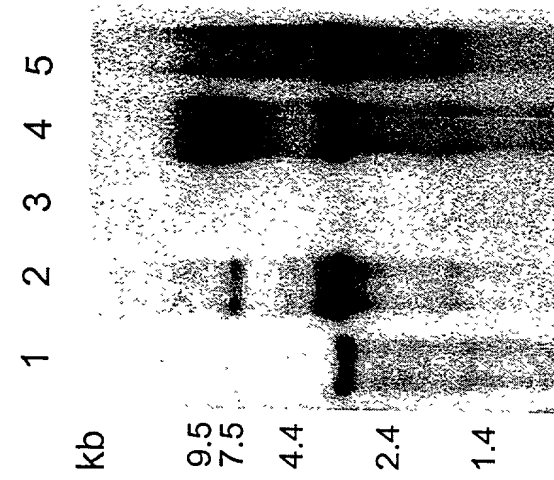


FIG. 7

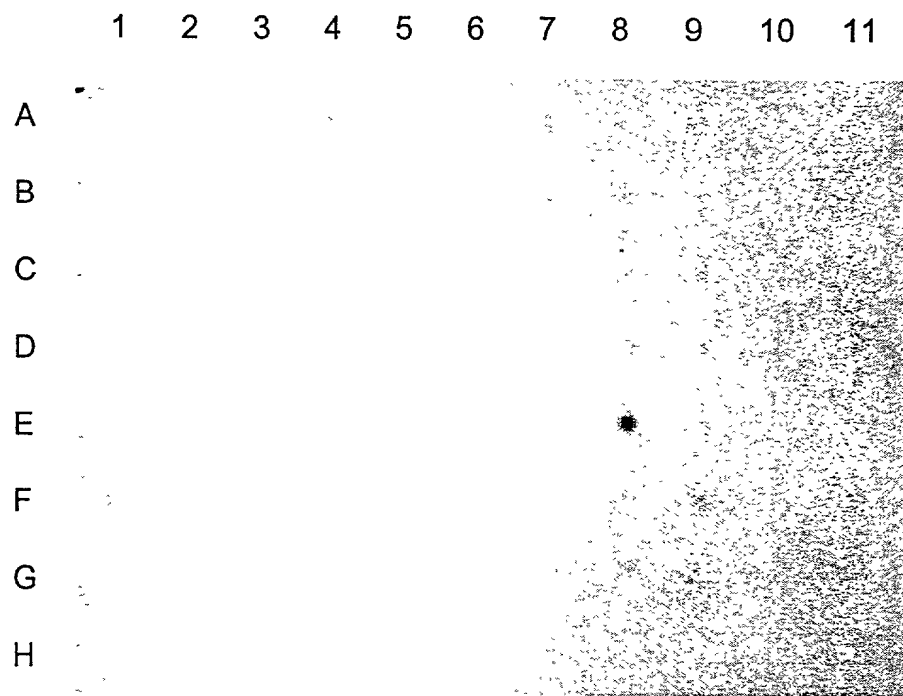


FIG. 8A

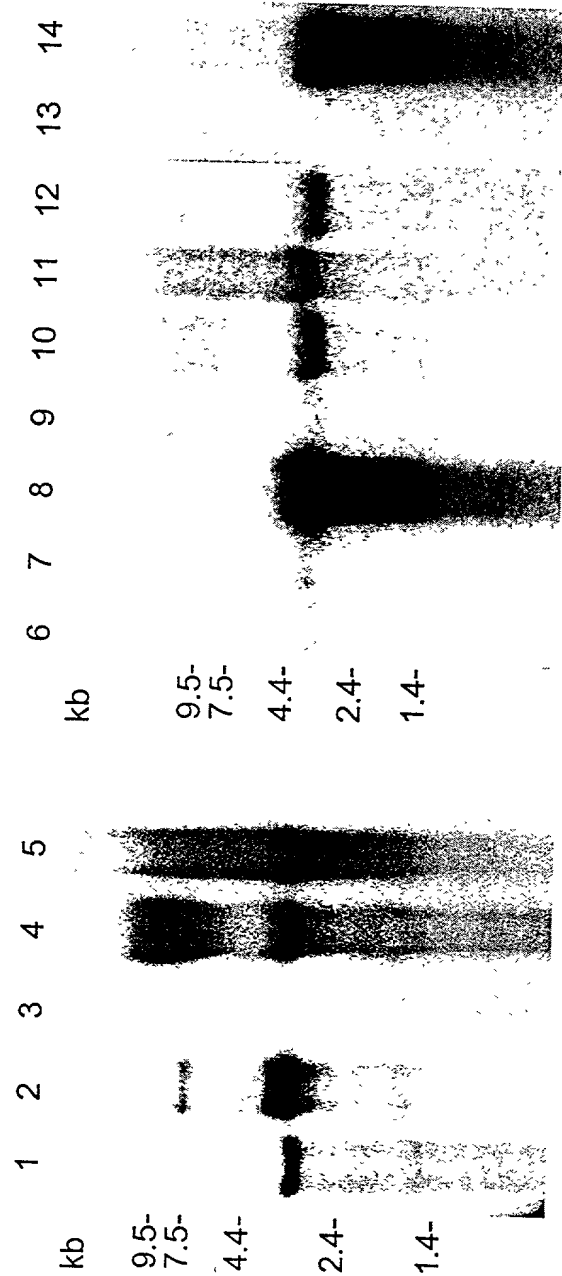


FIG. 8B

Figure 9A

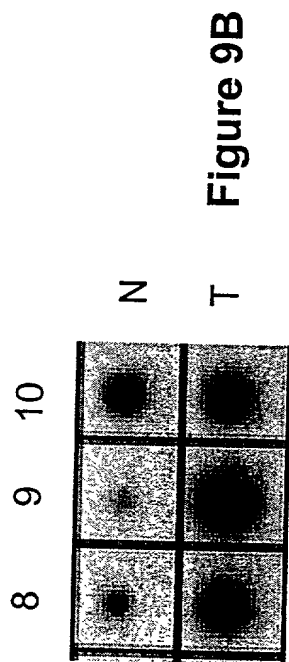
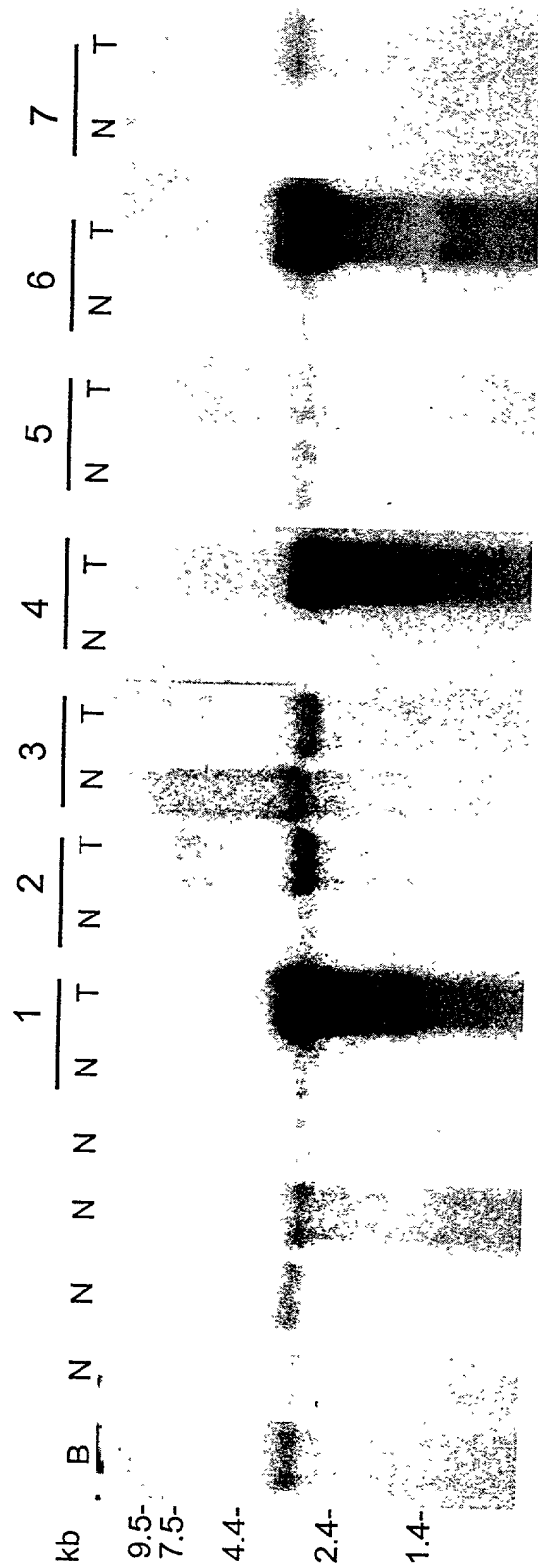


Figure 9B

Figure 10

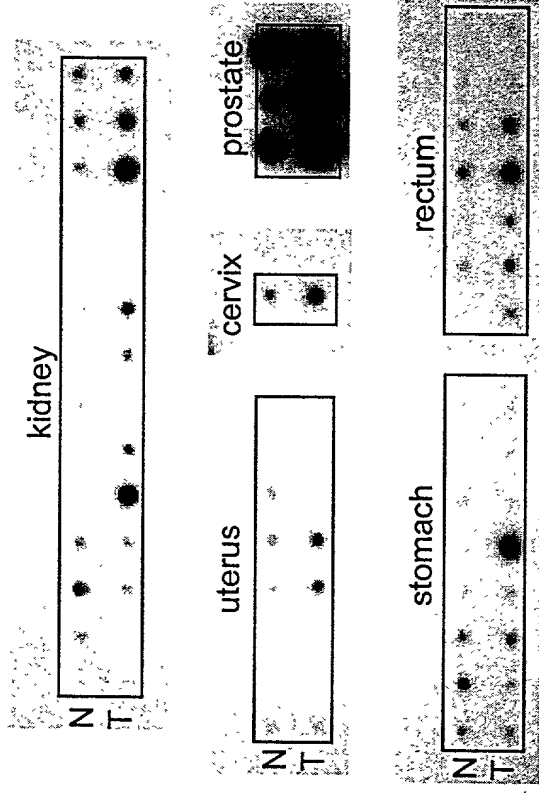


Figure 11A-11B

PIN



Prostate Cancer

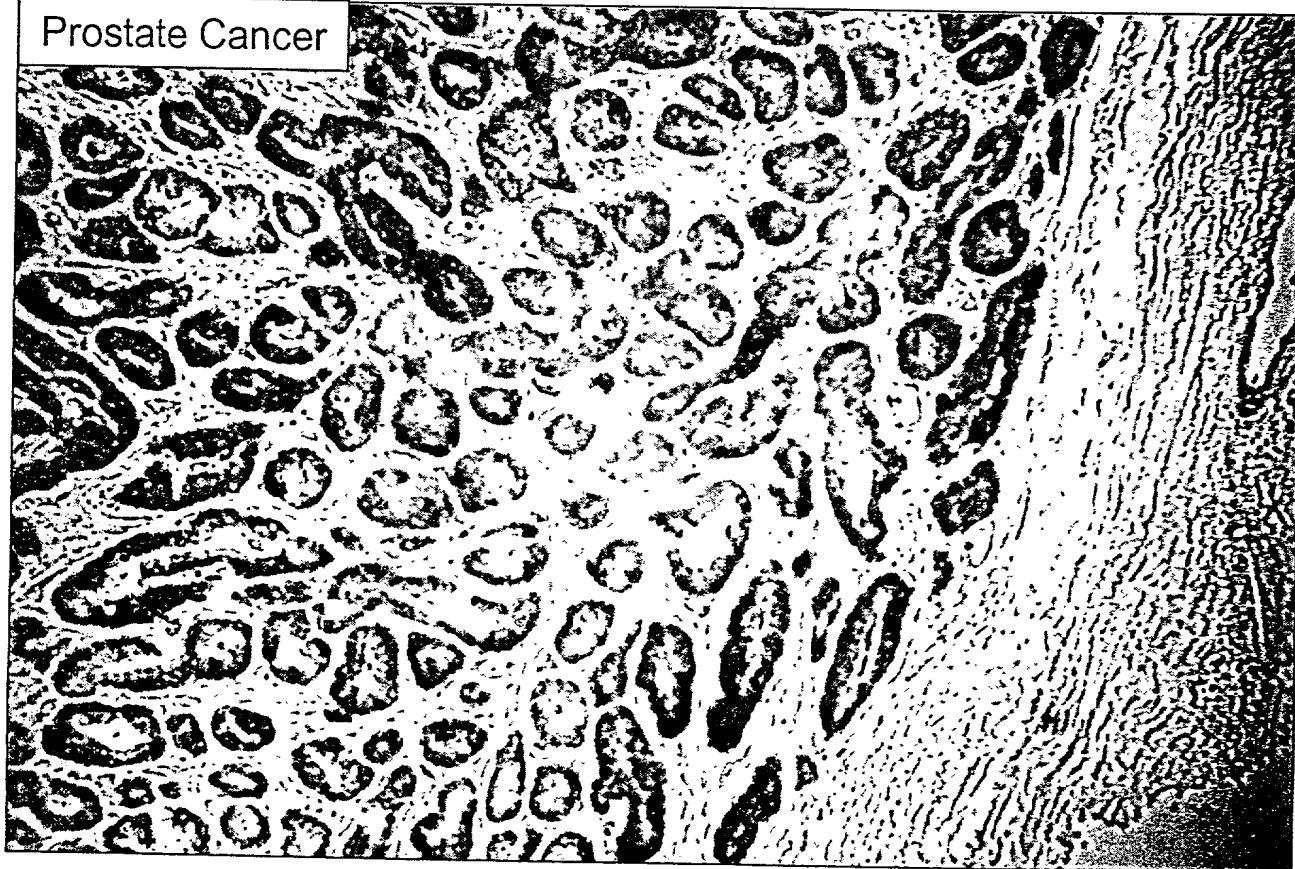
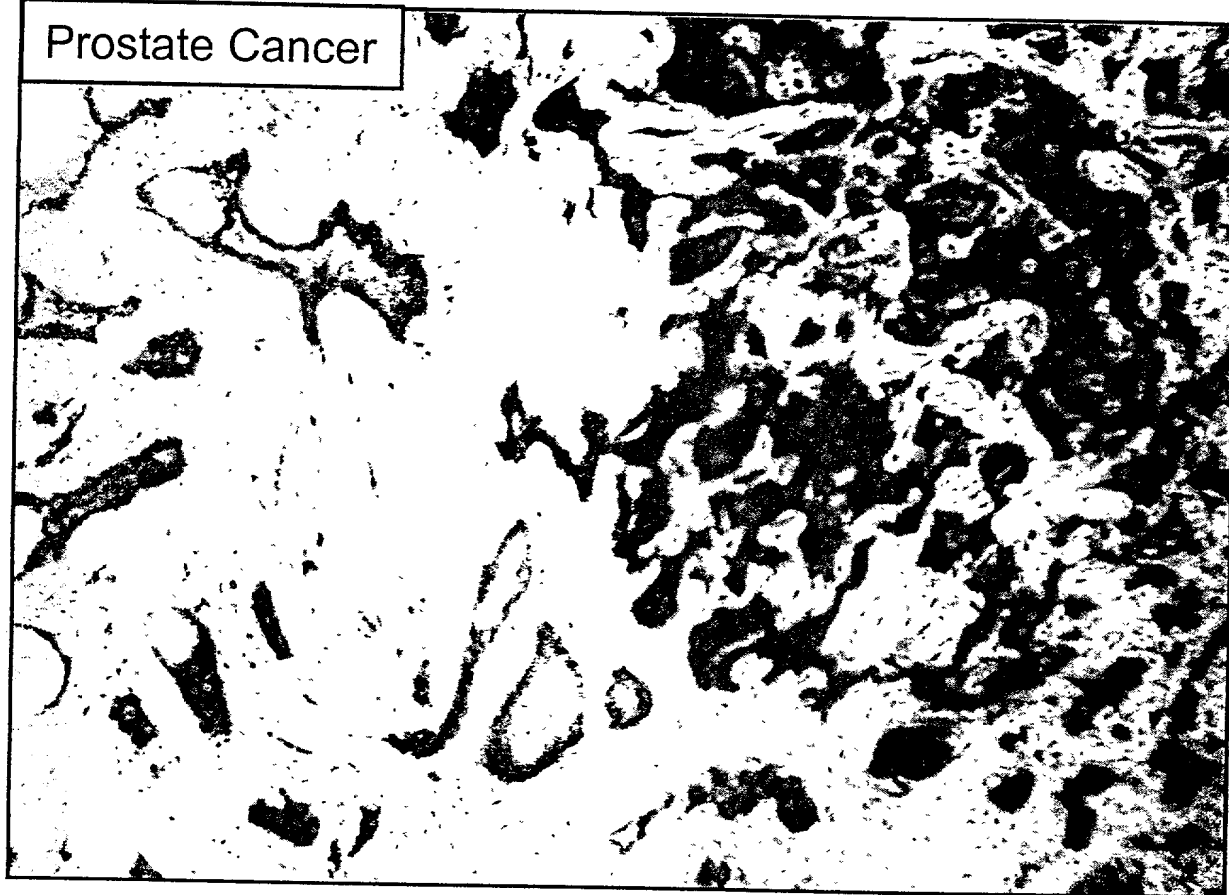


Figure 12A-12B

Prostate Cancer



Normal Prostate

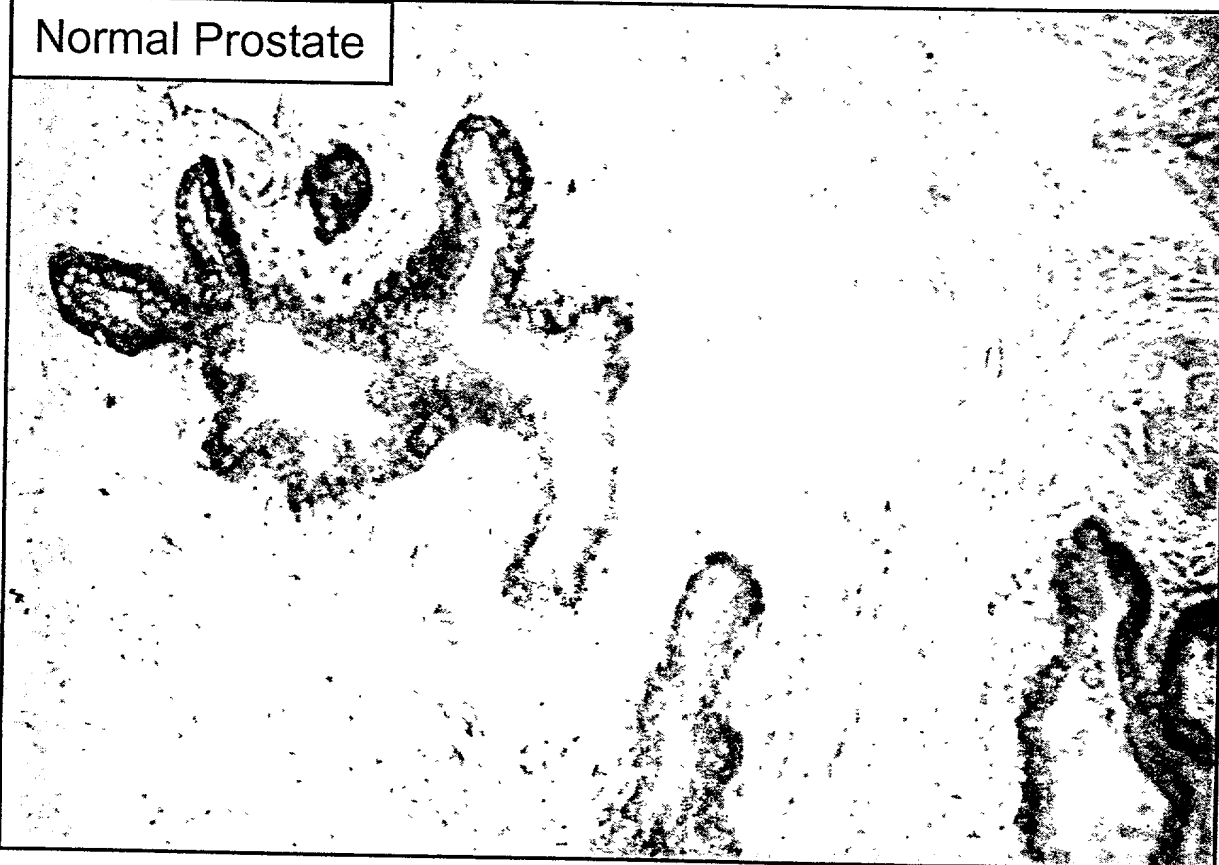


FIG. 13A

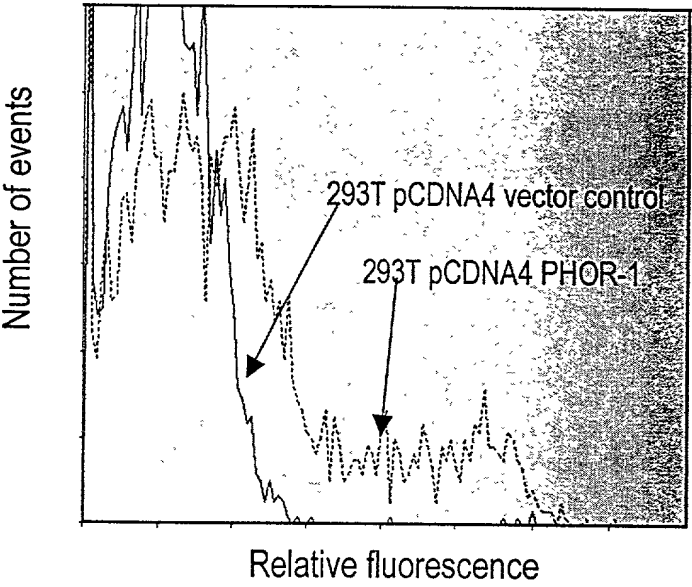


FIG. 13B

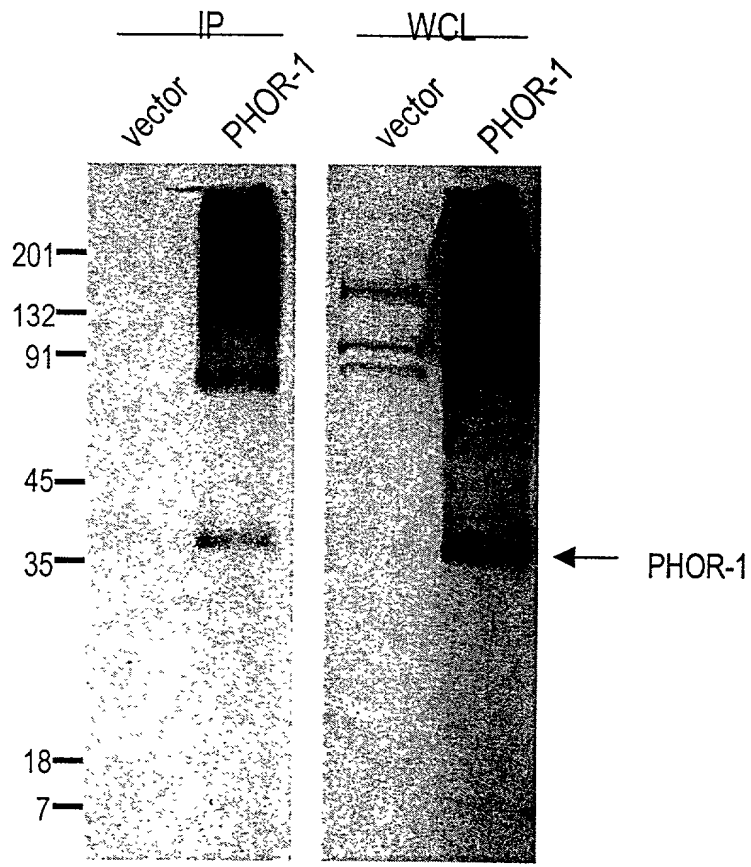


Fig. 14A

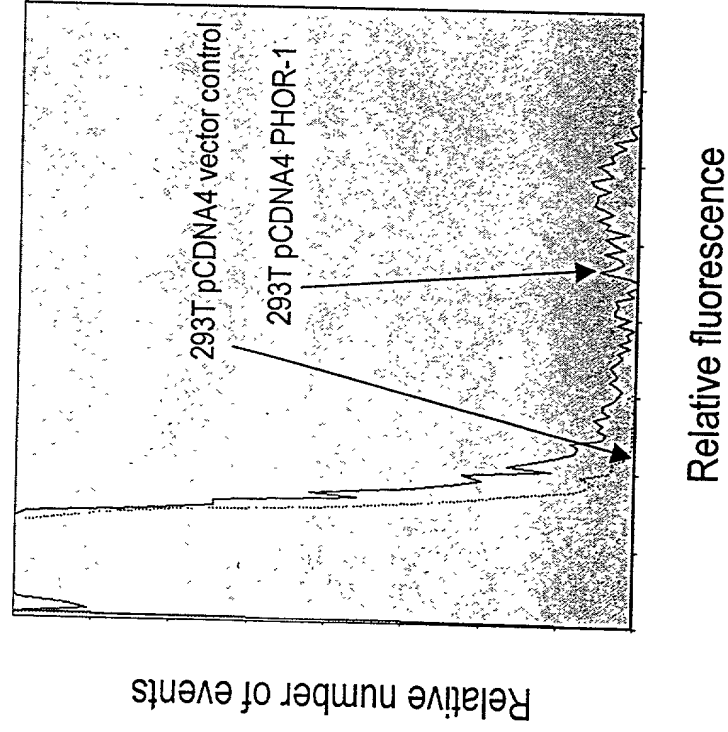


Fig. 14B

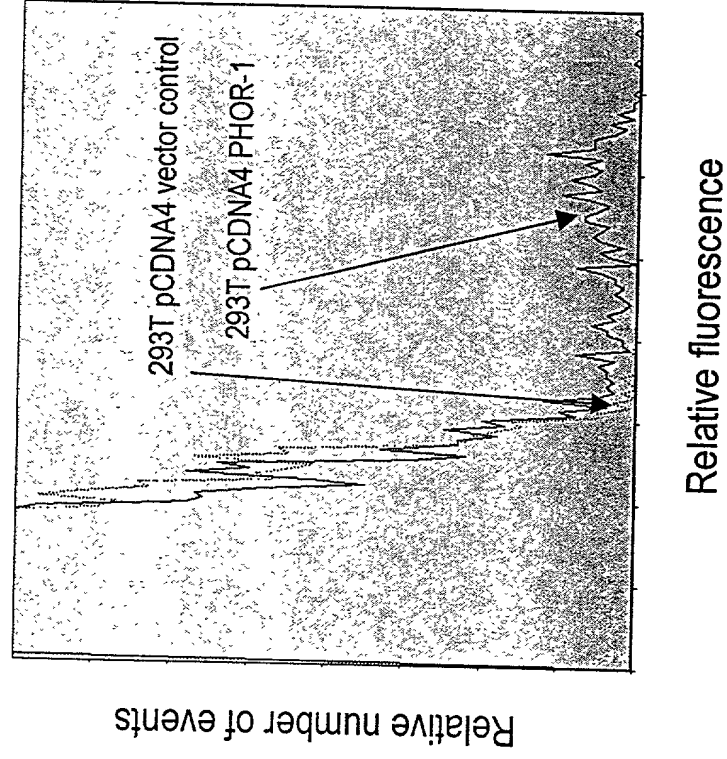


Fig. 15

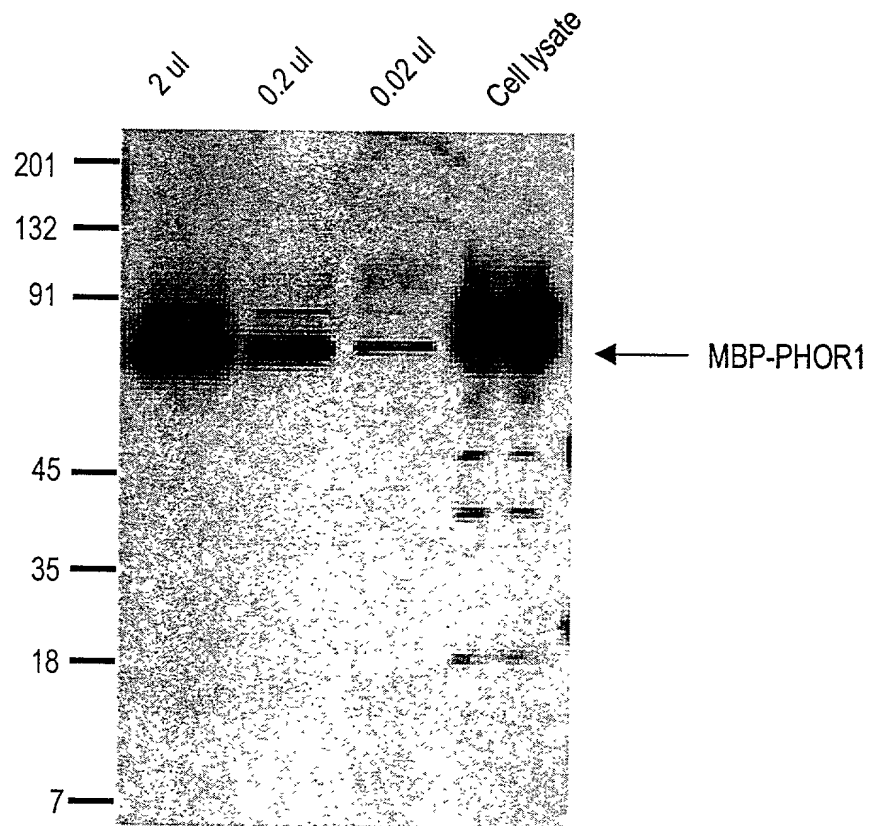


Fig. 16A

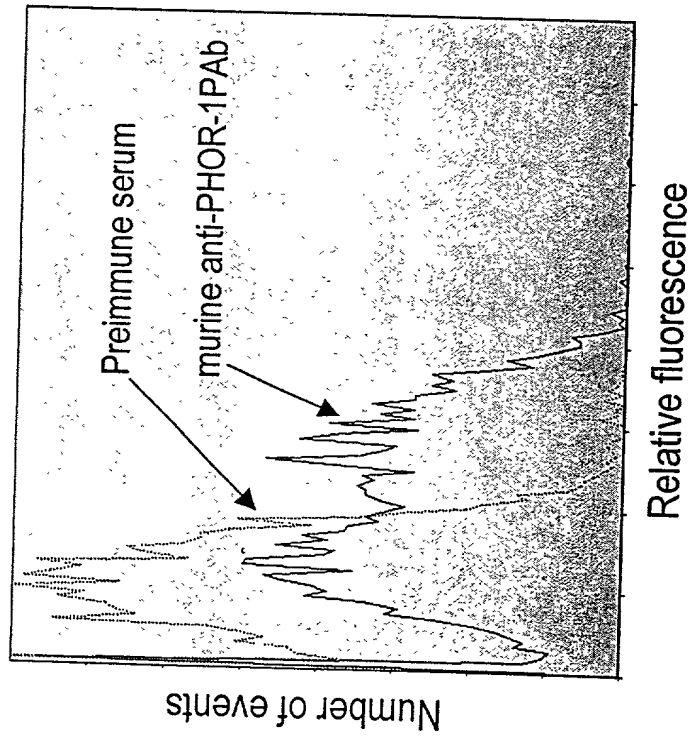
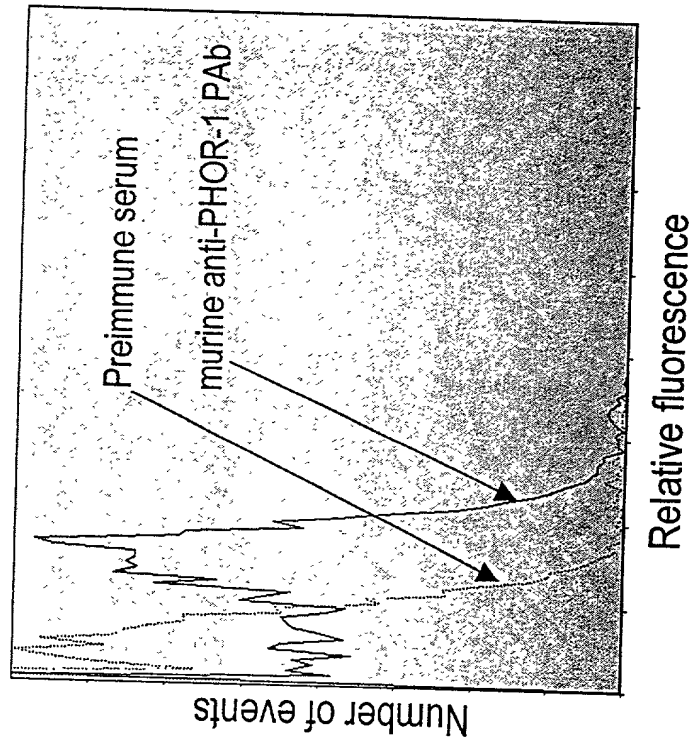


Fig. 16B



Control

PHORI

42-

35-



FIG. 17

Figure 18A-F

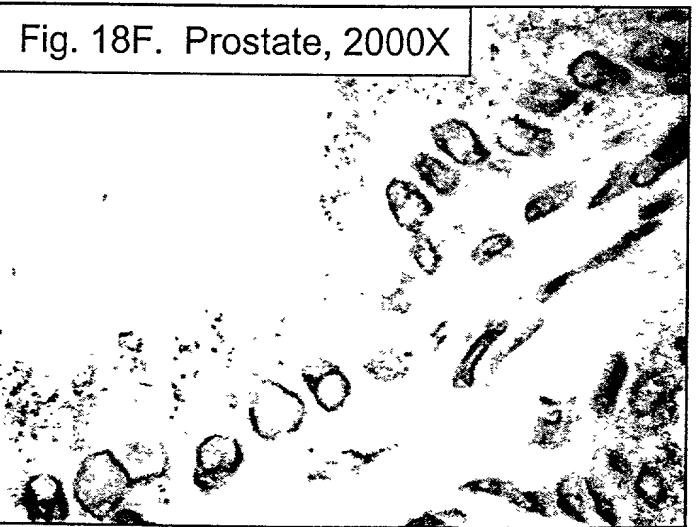
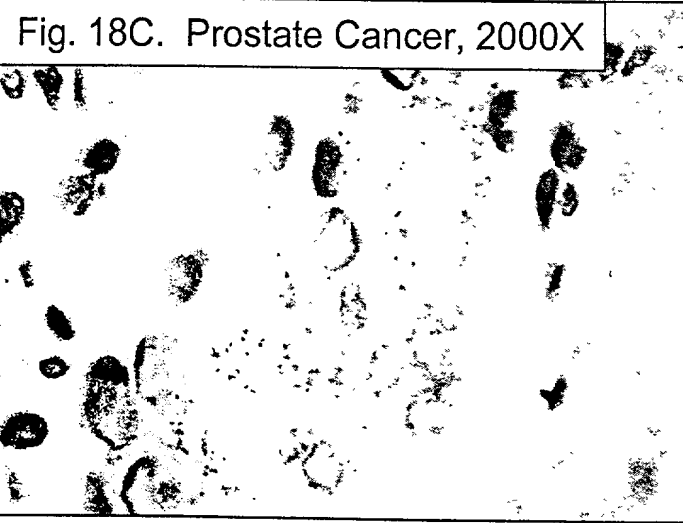
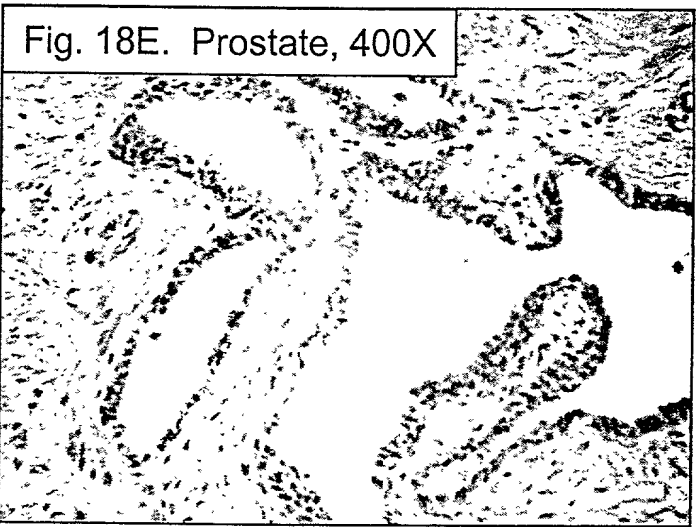
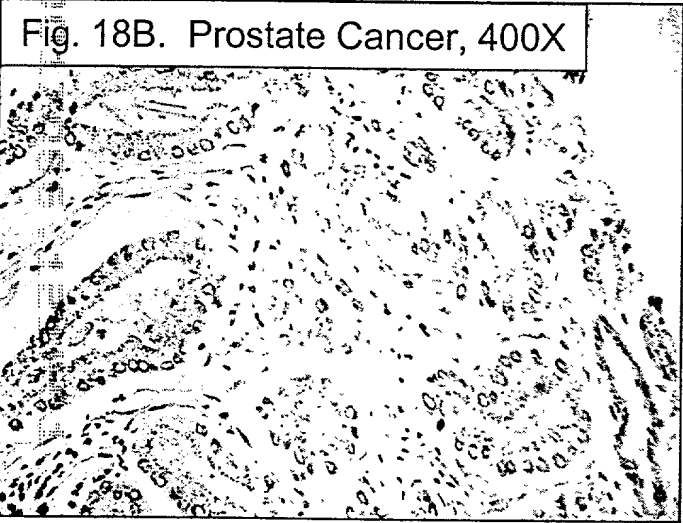
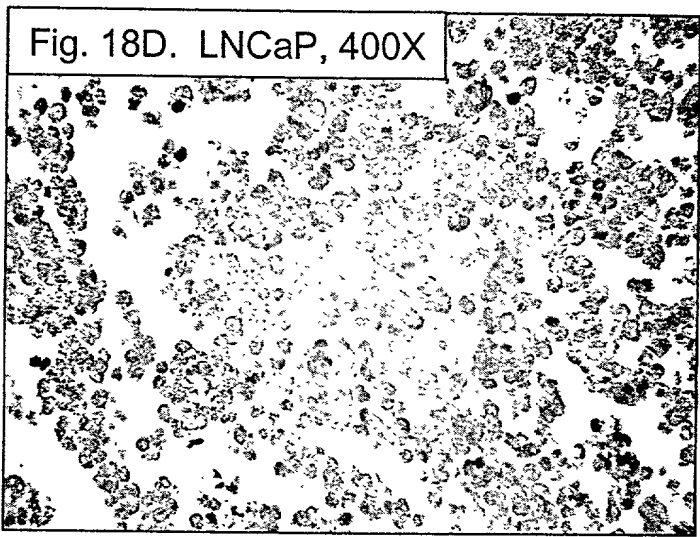
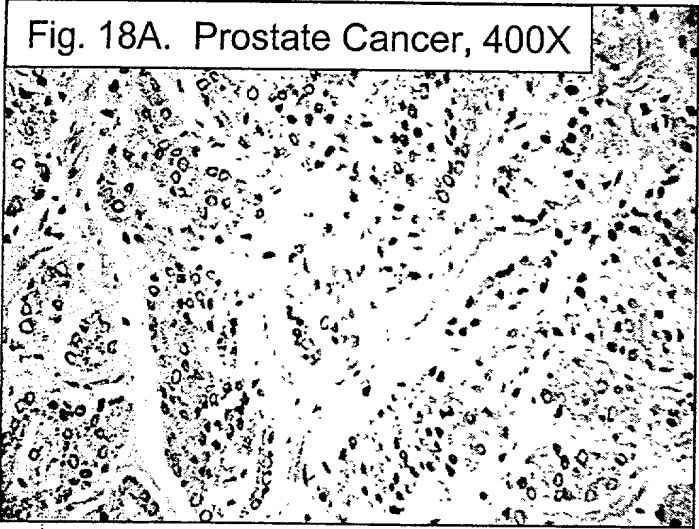


Figure 19A-F

Fig. 19A. 293T



Fig. 19B. 293T-PHOR1

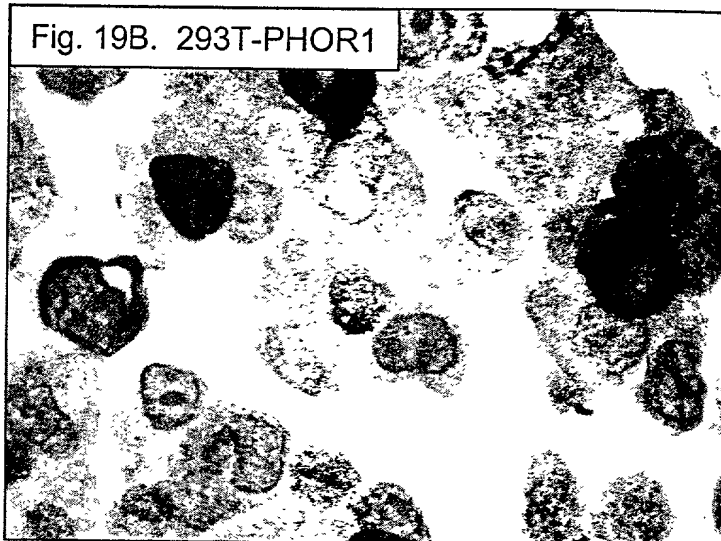


Fig. 19C. PC3

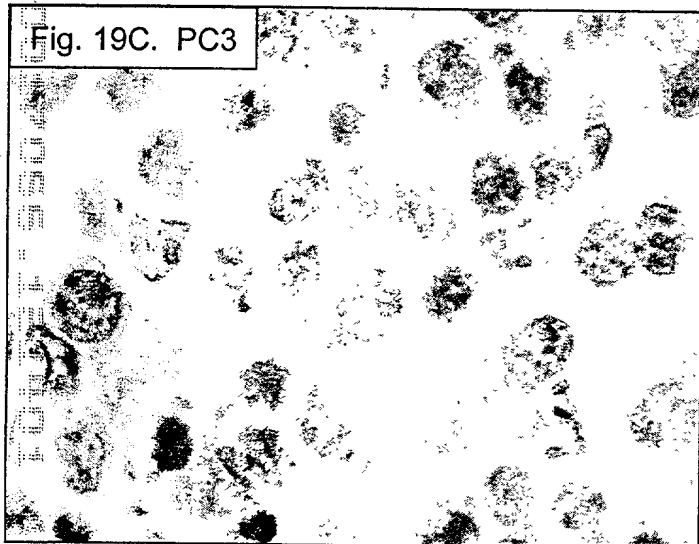


Fig. 19D. PC3-PHOR1

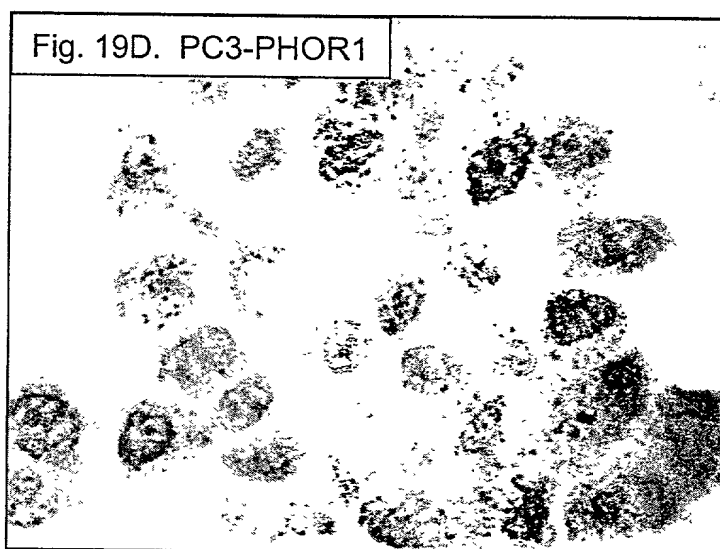


Fig. 19E. Prostate Cancer

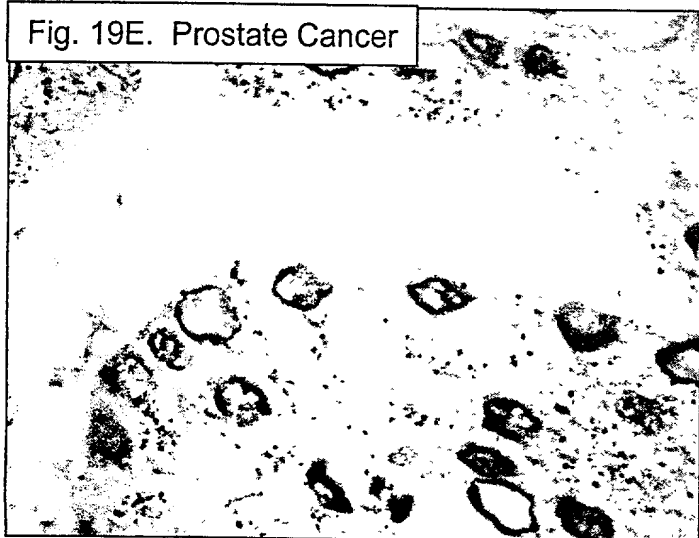
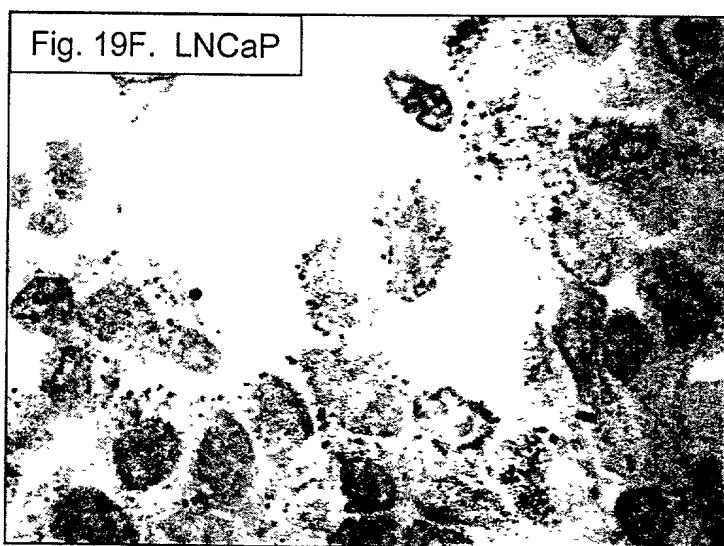


Fig. 19F. LNCaP



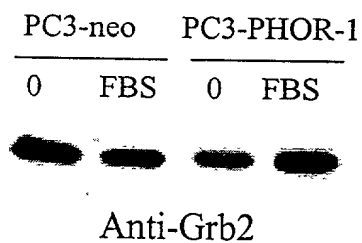
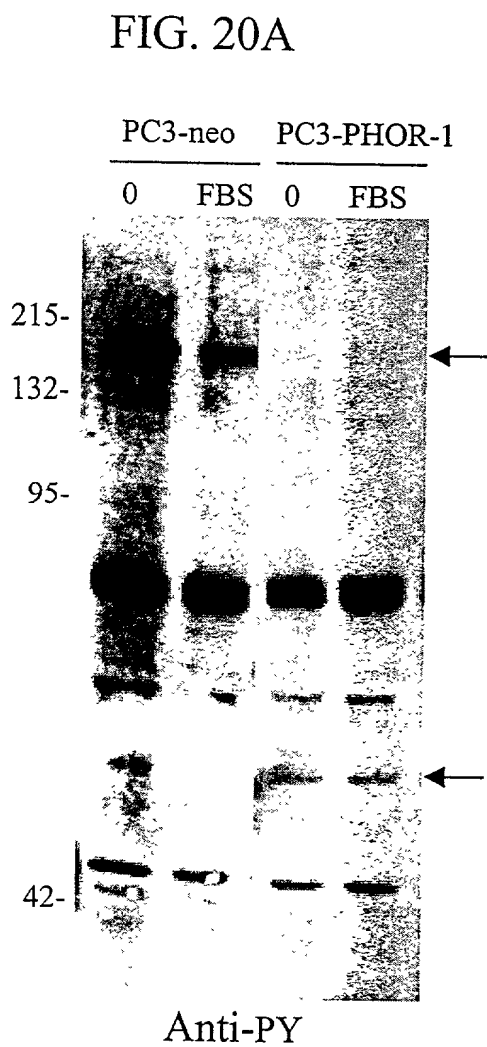


FIG. 20C

FIG. 20B

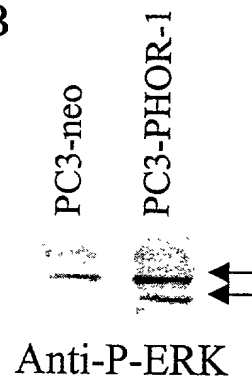


FIG. 20D

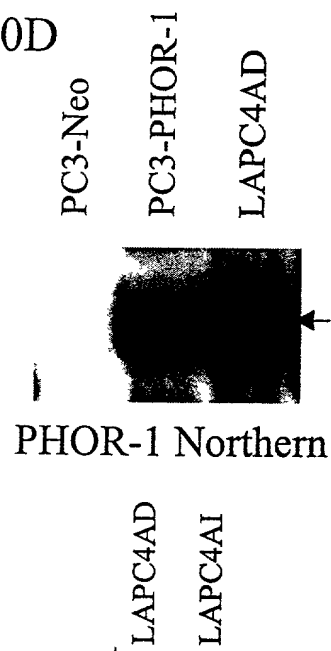


FIG. 20E



PHOR1 Northern

Neo



Fig. 21A

PHOR1

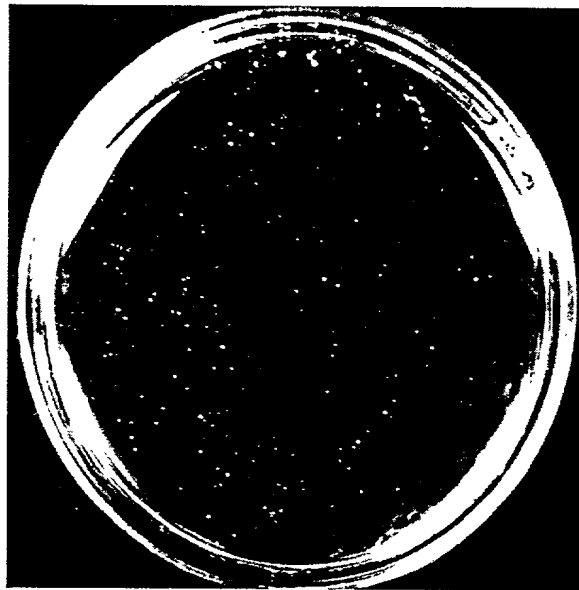


Fig. 21B

Ras

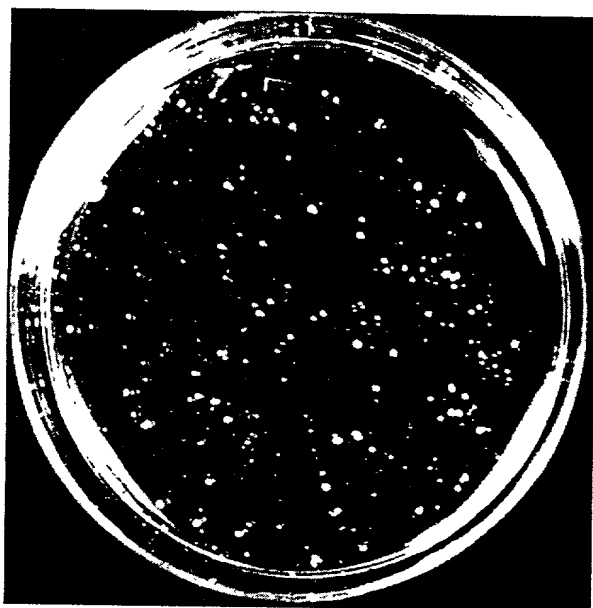


Fig. 21C

FIG. 22

```

5'  GCT GTG GCC ATG TTT ATT GGA GTG TTG GAT CTA TTC TTT ATC ATC CTA TCT TAT
    ---
    A  V  A  M  F  I  G  V  L  D  L  F  F  I  I  L  S  Y

      63      72      81      90      99      108
ATC TTT ATC CTT CAG GCA GTT CTA CAA CTC TCC TCT CAG GAG GCC CGC TAC AAA
---
I  F  I  L  Q  A  V  L  Q  L  S  S  Q  E  A  R  Y  K

      117      126      135      144      153      162
GCA TTT GGG ACA TGT GTC TCT CAC ATA GGT GCC ATC TTA GCC TTC TAC ACA CCT
---
A  F  G  T  C  V  S  H  I  G  A  I  L  A  F  Y  T  P

      171      180      189      198      207      216
TCA GTC ATC TCT TCA GTC ATG CAC CGT GTG GCC CGC TGT GCT GTG CCA CAC GTC
---
S  V  I  S  S  V  M  H  R  V  A  R  C  A  V  P  H  V

      225      234      243      252      261      270
CAC ATT CTC CTC GCC AAT TTC TAT CTG CTC TTC CCA CCC ATG GTC AAT CCC ATC
---
H  I  L  L  A  N  F  Y  L  L  F  P  P  M  V  N  P  I

      279      288      297      306      315      324
ATC TAT GGC GTT AAG ACC AAG CAG ATC CGT GAC AGT CTT GGG AGT ATT CCT GAG
---
I  Y  G  V  K  T  K  Q  I  R  D  S  L  G  S  I  P  E

      333      342      351      360      369      378
AAA GGA TGT GTG AAT AGA GAG TGA GGA ATA AGT GGA AAA AGA GTG GGG CCC AGT
---
K  G  C  V  N  R  E  *

      387      396      405      414      423      432
GAA TGC TGT AGT GGG CCA GGG CTG TGC TGA GAG TAG ATG GGT CCT AGA CTC CAC
---
      441      450      459      468      477      486
GTT TAG TTC TTT TCT TGT ATT ATG AAA AGA ATA AAT GAT GTC CTG AAG CTC AGA
---
      495
AAA AAA AAA AAA AAA 3'
---

```

FIG. 22